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In reply refer to:
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May 27, 2015

Lieutenant Colonel John S. Ladd, Environmental Program Manager
Arizona Army National Guard
Departments of the Army and the Air Force
Joint Force Headquarters – Arizona
5636 East McDowell Road
Phoenix, Arizona 85008-3495

RE: Biological Opinion for Arizona Army National Guard, Camp Navajo, Reinitiation Maneuver Training Center - Light

Dear LTC Ladd:

Thank you for your request for re-initiation of formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your original request was dated September 17, 2012, and received by us on September 19, 2012. This consultation concerns the possible effects of the proposed construction and development of new ranges, training areas, and improvements to existing ranges at Camp Navajo, Coconino County, Arizona. Because this project has changed several times and the environmental baseline has changed, completing this consultation was delayed. We appreciate your willingness to work with us to accommodate our workload. The Arizona Army National Guard (AZARNG) has determined that the proposed action may affect the threatened Mexican spotted owl (*Strix occidentalis lucida*) and its designated critical habitat.

The BA also requested that we provide our technical assistance with respect to compliance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) for wintering bald eagles (*Haliaeetus leucocephalus*). Our documentation of AZARNG's implementation of minimization measures to reduce the likelihood of take is included in Appendix A.

This biological opinion is based on information provided in the July 2011, formal consultation on this subject, the January 2012, Biological Assessment (BA), the September 2012 amendment to the BA, the September 2014 amendment to the BA, conversations and electronic correspondence with AZARNG staff, and other sources of information. Literature cited in this biological opinion (BO) is not a complete bibliography of all literature available on the species addressed or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

Details of the consultation history are summarized in Table 1.

Table 1. Summary of Consultation History

Date	Event
December 17, 2008	We began discussions with the AZARNG and their consultants regarding the project. Electronic mail correspondence regarding the project has continued to date.
May 11, 2009	The AZARNG requested available data on the distribution of wildlife and plant species at Camp Navajo.
June 5, 2009	We received and reviewed the comment matrix for the draft Maneuver Training Center (MTC) – Light BA.
June 12, 2009	We responded to AZARNG's request for information regarding wildlife and plant species at Camp Navajo.
July 23, 2009	We provided comments to the AZARNG regarding the draft BA for the project.
January 31, 2011	We received the final draft of the MTC – Light BA for our review.
February 11, 2011	We provided comments to the AZARNG on the final draft of the MTC-Light BA.
February 25, 2011	The AZARNG requested formal consultation for potential adverse affects to the Mexican spotted owl and its designated critical habitat resulting from upgrading Camp Navajo to a MTC-Light installation.
March 22, 2011	We acknowledged your request for formal consultation with a 30-day letter.
July 13, 2011	We provided a copy of the draft BO to your staff for review.
July 13, 2011	We received your comments on the draft BO and incorporated them into the final document.
July 14, 2011	We issued a final BO on the MTC – Light Project.
December 16, 2011	We met with Camp Navajo staff to discuss changes and additions to the proposed action.
February 1, 2012	We received your request for reinitiation of section 7 consultation and a new BA for the project.
March – July, 2012	Mexican spotted owl surveys at Camp Navajo indicated the presence of more than one activity center, prompting necessary changes to the consultation.
July 23, 2012	Camp Navajo and FWS staff conducted field visits to the new owl locations.
September 19, 2012	We received a new request for reinitiation on the proposed action and an amendment to the February 2012 BA.
October 26, 2012	We acknowledged your request for formal consultation with a 30-day letter.

November 2012 – June 2014	Ongoing discussions and field visits occurred between FWS and AZAGRG staff regarding Mexican spotted owl surveys and changes to the proposed action.
July 31, 2014	We provided a copy of the draft BO to your staff for review.
September 22, 2014	We received comments on the draft BO and the revised BA.
September 26, 2014	We received your final comments on the draft July 2014 BO.
September 2014-May 2015	We discussed comments and changes to BO with AZARNG.
May 26, 2015	We received final approval on draft BO from AZARNG.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The below project description includes changes to the proposed action and conservation measures as described in documents submitted after the July 14, 2011, BO was issued.

Camp Navajo is located near Bellemont, Arizona, in the north-central part of the state, approximately 15 miles west of the City of Flagstaff and 17 miles east of Williams. The installation is approximately 28,372 acres in size. Areas where range expansion would occur are found in Townships 21 and 22 North, Range 5 East, and Township 21 North, Range 6 East, of the Gila and Salt River Baseline and Meridian, Coconino County, Arizona (see Figure 1, page 2-3 in the 2011BA).

The agency action includes the construction and operation of a 6,600-acre MTC-Light complex at Camp Navajo. As part of the proposed action the AZARNG proposes to construct and operate 12 new training ranges, including 32 support buildings for the ranges, and 10 latrine facilities that would be constructed in conjunction with the ranges. Twelve buildings would be constructed to train troops in urban warfare. Additional improvements would include new training buildings, support and management facilities, real property improvements, utility upgrades and forest treatments.

Several guidelines, procedures, and standards were used to determine the most feasible sites for the range complex within the installation. These included Training Circular 25-8, *Training Ranges* and the U.S. Army Corps of Engineers *Range Design Guide*, *Policies and Procedures for Firing Ammunition for Training Target Practice and Combat* (Army Regulation 385-63), *Ammunition and Explosive Safety Standards* (Department of the Army Pamphlet 385-64), and AZIA-ZX-QA Memorandum (Army Regulation 385.63). This standard guidance is used for planning, developing, constructing, and operating Army ranges and developing surface danger zones (SDZs) for weapons fired on Army and AZARNG ranges.

SDZs include the ground and airspace designated within the training complex for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing,

launching, or detonation of weapons systems (ammunition, explosives, and demolition explosives). The objective of designating SDZs is to minimize the risk to the public of weapons fragment escape or other firing range danger. The standard is to allow no greater than a one in one million residual risk of fragment escape or other danger to the public. Some ground disturbance would occur within SDZs, which would be caused by itinerant projectiles, fragments, or debris that can occasionally drift into these areas. SDZs were developed using the general footprint of the ranges based on ammunition types. Several site-specific variables, including topography, were not included in the original analysis to create the SDZs as illustrated in the February 2011 BA. To more accurately analyze impacts from these live fire ranges on Camp Navajo, the National Guard Bureau conducted a Terrain Mitigated SDZ analysis for four ranges (the existing Qualification Training Range and Combat Pistol Qualification Courses, and the proposed Multi-Purpose Machine Gun and Infantry Squad Battle Courses). Based upon the topography around all four ranges, it is expected that each of them may be reduced in size.

The eastern, southern, and southwestern-most portions of the Camp Navajo installation were determined to be the most feasible sites for the new individual ranges proposed to comprise the MTC-Light range complex, based on the above standard guidance, Camp Navajo mission requirements, facilities (e.g., especially the existing depot-level storage areas and bunkers), and current and planned land uses within Camp Navajo. An additional consideration for locating the proposed ranges was to keep all SDZs within installation boundaries. Those sectors of the installation described above contain sufficient unrestricted land to support the proposed training ranges and lands. The proposed action would also include improvement of existing roads/trails and utilities in the same sectors as the proposed ranges and land developments. The proposed action includes conservation measures, best management practices, and other measures described to minimize impacts to Mexican spotted owls and bald eagles resulting from the development, construction, and operation of the proposed MTC-Light ranges.

Specific information on construction and use of the ranges described below are found in Table 2-1 and Table 2-2 in the BA (pages 2-9 through 2-11) and in the additional amendments to the proposed action. In addition to the training ranges, a Veterans' Cemetery is being constructed in the northwestern part of the facility. There are several ranges included in the BA that we consulted on in a previous BO (Consultation #22410-2004-F-0008); the construction and operation of previously consulted on actions is not included in this proposed action. The new ranges to be constructed as part of this action are as follows:

- *Multi-Purpose Machine Gun Range:* This range would be designed for zeroing, training, and qualification requirements with squad automatic weapons and machine guns. This range would be located in the southern quadrant of the installation and will be 51 acres in size.

- *Obstacle Course:* This facility would be designed to help soldiers develop confidence and strength by navigating through a series of obstacles. This course is located at the eastern boundary of the installation.

- *Anti-Armor Tracking Range:* This range complex would be designed to meet training and qualification requirements with medium and heavy anti-armor weapons systems. Lasers will be employed and noise simulators could be used on this range, but no live

ammunition would be used. This range would be located in the same area as the Light Anti-Armor Range in the southwestern quadrant of the installation.

- *Infantry Platoon Battle Course:* This complex would be designed to meet the training and qualification requirements of infantry platoons, either mounted or dismounted, for movement techniques and operations. This range would be located near the southern boundary of the installation.

- *Infantry Squad Battle Course:* This complex would be designed to meet the training and qualification requirements of teams and squads in individual and collective tactics, techniques, procedures, and employment in tactical situations. This range would be near the southern boundary of the installation and overlaps the Infantry Platoon Battle Course.

- *Convoy Live-Fire Course:* This training facility would be used to train and evaluate units during live-fire exercises and to test the skills of vehicle operators with a variety of vehicles. The course would follow existing installation roads in the southern part of the installation.

- *Military Operations in Urban Terrain:* This training course would be designed to meet the training requirements of a company-sized infantry unit operating in an urban environment. This complex would contain a maximum of 12 facilities. This course would be located in the southeastern quadrant of the installation and would only use blank ammunition.

- *Light Demolition Range:* This range would be designed for training and qualification in employing explosives and demolition charges. The location is in the northeastern portion of the installation and the range size would be five acres.

- *Leadership Reaction Course:* This facility would be designed to develop leadership, teamwork, and confidence having soldiers navigate through a series of obstacles. This course would be located on the same area as the Confidence Course at the eastern boundary of the installation.

- *M113 Tracked Vehicle Course:* This course would be used to train soldiers on the use of M113 tracked vehicles. In the previous proposed action, training was to be limited to existing roads and trails and would need no additional construction or improvements. The current course includes 52 miles of existing roads and trails which would require road improvements and widening to 36 feet to accommodate two-way traffic. One mile of the proposed course is located within the Mexican spotted owl protected activity center (PAC) on Volunteer Mountain. To reduce disturbance to this owls, a 1.4 mile segment of the course would be re-routed to a location along the perimeter fence in the northwestern corner of the installation and would be lengthened by 0.6 mile in order to provide a continuous loop within the course.

Drop Zones

Six drop zones would be used to train soldiers in day and night airborne operations. Four drop

zones ranging from 45 to 63 acres and two ranging from 103 to 108 acres (423 total acres) would be located in existing open areas that will further be enlarged during forest thinning treatments. Flights and use of drop zones would occur up to 12 times throughout the year and each event would involve approximately 8 to 16 soldiers. Planes used for the drops would fly at altitudes no lower than 20,000 feet and flight paths would be regulated by the Federal Aviation Administration.

Landing Zones

Landing zones are used to train helicopter pilots and transported soldiers on the skills needed to successfully execute airmobile operations. Six landing zones would located in existing open areas four to seven acres in size (30 acres total) in which two or three helicopters could quickly touch down, drop-off or pick-up soldiers and quickly take off again. Airmobile operations would be conducted up to 30 times per year and involve one to three helicopters carrying up to eight soldiers each.

Bivouac Sites

Bivouac sites would be designed for encampment of battalion size units during field and sustainment training exercises. Fourteen sites would be located throughout Camp Navajo within forested areas proposed for thinning. Each site would be developed to include a designated gravel pad for portable latrines and dumpsters. Sites would range in size from 20 to 48 acres (480 acres total), but only five to 12 acres would be used at one time (120 acres total). Smaller five acre sites would hold an average of 200 soldiers and the large sites (8 to 12 acres) holding 300 to 400 soldiers. Encampments would be occupied no more than 14 days at a time by any one training unit and would be monitored after each use for resource damage.

Forest Treatments

A combination of mechanical thinning, hand thinning, slash treatments and prescribed fire is proposed on approximately 13,546 acres. Forest treatments are designed to create a mosaic of varying tree sizes and densities at multiple spatial scales to meet soldier training needs. Treatments would reduce tree densities in order to decrease horizontal connectivity within the tree canopy through which a crown fire could spread, reduce the risk of damage by insects and pathogens, and improve the diversity of forest conditions to improve ecosystem health.

Broadcast burning would be conducted in grassland and other areas when feasible and when weather conditions permit on 17,049 acres. Burning would occur either in the spring or fall when fuel moistures are appropriate to meet burn objectives. The AZARNG consulted informally on the Westside Buffer Training Area Forest Thinning and Prescribed Fire Project and there are no changes proposed for these treatments as part of the MTC-Light project.

Road Improvements

A total of 64 miles of dirt road (including 52 miles of the M113 tracked vehicle course) that are currently wide enough for a single vehicle will be widened to 36 feet to accommodate two-way vehicle movement for training and access. An additional 11.5 miles of road along the

installation perimeter will be improved where necessary to 15 feet wide for security and access. When possible, segments of existing roads would be re-routed around meadows. Poorly located and unneeded roads would be decommissioned to lessen the impact on resource sensitive area.

Training Center Buildings and Related Facilities

Additional buildings, facilities, utilities, infrastructure, and other real property improvements of the proposed action would be required for the transition and expansion of Camp Navajo to MTC-Light standards. Those would include the following:

- *Multipurpose Training Building:* The facility would provide classrooms, a fitness room, and training support administrative areas. This facility would be enhanced to provide full-service capacity and capability to serve as the State of Arizona Emergency Operations Center, in combination with other facilities within the training center campus.

- *Logistics Support Center:* The facility would provide training program and resource management for the training center, ranges, and field training and maneuver areas. Offices would include the housing office and range control office.

- *Training Center Campus:* The campus would consist of additional barracks, a dining facility, and a company headquarters for an additional force of about 1,000 soldiers.

- *Installation Support Center:* The facility would consolidate installation support functions into a single location to include engineering, environmental, maintenance, supply, and industrial operations.

- *Installation Utility Upgrades:* Key utility upgrades, modernization, and replacement would include the electrical and water systems.

The buildings and utilities described above were proposed in the Camp Navajo Real Property Development Plan (June 2008) to support Camp Navajo's transition to a MTC Light level of training and are specific to its MTC-Light mission. Other development projects in the Camp Navajo Real Property Development Plan not specific to the MTC-Light mission have not been included as part of the proposed action for evaluation in this document and will be consulted on separately if needed.

Conservation Measures

- AZARNG would continue to conduct biennial surveys for the Mexican spotted owl within Camp Navajo in partnership with and according to FWS survey protocol. The information could be used to better determine areas where AZARNG activities could be tailored to maintain owl habitat. In addition, the AZARNG will monitor PACs annually.

- Prior to any range use, a visual scan of the range would be made for the presence of raptors, including Mexican spotted owls. Trained personnel would conduct these searches. If raptors are observed during initial scan of the range area, the Camp Navajo Natural Resources Specialist would be notified and activities would be halted until the

species are identified and the activities are cleared to proceed. If no large raptors are observed prior to range use, activities would proceed as planned. Though this visual technique would be unlikely to detect any Mexican spotted owls, it could incidentally reduce the impact to the species and would aid in raising awareness of soldiers using the range that maintaining wildlife resources at Camp Navajo is important.

- Targets in firing ranges would be configured to avoid large-diameter trees and snags.

- Trees left within proposed firing ranges would be monitored to assess long-term damage from training rounds. A monitoring program for forested areas within proposed ranges and SDZs may also be established to assess forest reproduction and recruitment. Monitoring would be conducted under the Land Condition Trend Analysis component of the AZARNG Integrated Training Area Management Program.

- Roadways, staging areas, and other areas disturbed during construction activities and that would not be needed for the proposed ranges would be re-vegetated with native plant species.

- Mechanical thinning and prescribed burning within the firebreak perimeters would continue to be conducted to minimize the risk of wildfire spreading to potential owl habitat.

- Human activities and noise disturbance in the Volunteer Canyon Mexican spotted owl PAC would be limited during the breeding season (March 1 through August 31) unless necessary activities, such as fire suppression, preclude this measure. All construction activities within 0.25 mile of the PAC will be conducted outside the breeding season.

- Noise levels would be measured at the Volunteer Canyon PAC boundary for activities on the Infantry Squad Battle Course, Infantry Platoon Battle Course, Convoy Live Fire Range, and Multi-Purpose Machine Gun Range and would be reduced to less than 90 dBA. These levels would be verified by AZARNG prior to beginning operation of the range.

- Current tree densities between the PAC boundary and the Infantry Squad Battle Course and Infantry Platoon Battle Course would be maintained if necessary to keep noise levels below 90 dBA at the PAC boundary.

- Camp Navajo would implement a 25 mile per hour (mph) speed limit on dirt roads throughout the installation which should minimize the potential for vehicular collisions with owls. The speed limit is 35 mph on paved roads, but these roads are not located in Mexican spotted owl habitat.

STATUS OF THE SPECIES

In 1993, the FWS listed the Mexican spotted owl (hereafter, referred to as Mexican spotted owl, spotted owl, and owl) as threatened under the ESA. The FWS appointed the Mexican spotted owl Recovery Team in 1993 (USDI FWS 1993), which produced the Recovery Plan for the

Mexican spotted owl in 1995 (USDI FWS 1995). The FWS released the final Mexican spotted owl Recovery Plan, First Revision (Recovery Plan) in December 2012 (USDI FWS 2012). Critical habitat was designated for the spotted owl in 2004 (USDI FWS 2004).

A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the owl as a threatened species (USDI FWS 1993), the original Recovery Plan (USDI FWS 1995), and in the revised Recovery Plan (USDI FWS 2012). The information provided in those documents is included herein by reference.

The spotted owl occurs in forested mountains and canyonlands throughout the southwestern United States and Mexico (Gutiérrez et al. 1995). It ranges from Utah, Colorado, Arizona, New Mexico, and the western portions of Texas south into several States of Mexico. Although the owl's entire range covers a broad area of the southwestern United States and Mexico, it does not occur uniformly throughout its range. Instead, the Mexican spotted owl occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Known owl locations indicate that the species has an affinity for older, uneven-aged forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

In addition to this natural variability in habitat influencing owl distribution, human activities also vary across the owl's range. The combination of natural habitat variability, human influences on owls, international boundaries, and logistics of implementation of the Recovery Plan necessitates subdivision of the owl's range into smaller management areas. The 1995 Recovery Plan subdivided the owl's range into 11 "Recovery Units" (RUs): six in the United States and five in Mexico. In the revision of the Recovery Plan, we renamed RUs as "Ecological Management Units" (EMUs) to be in accord with current FWS guidelines. We divide the Mexican spotted owl's range within the United States into five EMUs: Colorado Plateau (CP), Southern Rocky Mountains (SRM), Upper Gila Mountains (UGM), Basin and Range-West (BRW), and Basin and Range-East (BRE) (Figure 2). Within Mexico, the Revised Recovery Plan delineated five EMUs: Sierra Madre Occidental Norte, Sierra Madre Occidental Sur, Sierra Madre Oriental Norte, Sierra Madre Oriental Sur, and Eje Neovolcanico.

Mexican spotted owl surveys since the 1995 Recovery Plan have increased our knowledge of owl distribution, but not necessarily of owl abundance. Population estimates, based upon owl surveys, recorded 758 owl sites from 1990 to 1993, and 1,222 owl sites from 1990 to 2004 in the United States. The Recovery Plan (USDI FWS 2012) lists 1,324 known owl sites in the United States. An owl site is an area used by a single or a pair of adult or subadult owls for nesting, roosting, or foraging. The increase in number of known owl sites is mainly a product of new owl surveys being completed within previously unsurveyed areas (e.g., several National Parks within southern Utah, Grand Canyon National Park in Arizona, Guadalupe National Park in West Texas, Guadalupe Mountains in southeastern New Mexico and West Texas, Dinosaur National Monument in Colorado, Cibola National Forest in New Mexico, and Gila National Forest in New Mexico). Thus, an increase in abundance in the species range-wide cannot be inferred from these data (USDI FWS 2012). However, we do assume that an increase in the number of areas considered to be occupied is a positive indicator regarding owl abundance.

Two primary reasons were cited for the original listing of the Mexican spotted owl in 1993:

1) the historical alteration of its habitat as the result of timber-management practices; and, 2) the threat of these practices continuing. The danger of stand-replacing fire was also cited as a looming threat at that time. Since publication of the original Recovery Plan (USDI FWS 1995), we have acquired new information on the biology, threats, and habitat needs of the Mexican spotted owl. Threats to its population in the U.S. (but likely not in Mexico) have transitioned from commercial-based timber harvest to the risk of stand-replacing wildland fire. Recent forest management has moved away from a commodity focus and now emphasizes sustainable ecological function and a return toward pre-settlement fire regimes, both of which have potential to benefit the spotted owl. Southwestern forests have experienced larger and more severe wildland fires from 1995 to the present, than prior to 1995. Climate variability combined with unhealthy forest conditions may also synergistically result in increased negative effects to habitat from fire. The intensification of natural drought cycles and the ensuing stress placed upon overstocked forested habitats could result in even larger and more severe fires in owl habitat. Several fatality factors have been identified as particularly detrimental to the Mexican spotted owl, including predation, starvation, accidents, disease, and parasites.

Historical and current anthropogenic uses of Mexican spotted owl habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of owl nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout the range of the owl and is thought to have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing throughout the Southwest, especially in meadow and riparian areas. There is anecdotal information and research that indicates that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior. Fuels reduction treatments, though critical to reducing the risk of severe wildland fire, can have short-term adverse effects to owls through habitat modification and disturbance. As the human population grows in the southwestern United States, small communities within and adjacent to wildlands are being developed. This trend may have detrimental effects to spotted owls by further fragmenting habitat and increasing disturbance during the breeding season.

Several fatality factors have been identified as particularly detrimental to the Mexican spotted owl, including predation, starvation, accidents, disease, and parasites. For example, West Nile Virus also has the potential to adversely impact the Mexican spotted owl. The virus has been documented in Arizona, New Mexico, and Colorado, and preliminary information suggests that owls may be highly vulnerable to this disease (Courtney et al. 2004). Unfortunately, due to the secretive nature of spotted owls and the lack of intensive monitoring of banded birds, we will most likely not know when owls contract the disease or the extent of its impact to the owl range-wide.

Currently, high-intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Uncharacteristic, high-severity, stand-replacing wildland fire is probably the greatest threat to the Mexican spotted owl within the action area. As throughout the West, fire severity and size have been increasing within this geographic area. Landscape level wildland fires, such as the Rodeo-Chediski Fire (2002), the Wallow Fire (2011), and the Whitewater-Baldy Complex (2012) have resulted in the loss of tens of thousands of acres

of occupied and potential nest/roost habitat across significant portions of the Mexican spotted owl's range.

Finally, global climate variability may also be a threat to the owl. Changing climate conditions may interact with fire, management actions, and other factors discussed above, to increase impacts to owl habitat. Studies have shown that since 1950, the snowmelt season in some watersheds of the western U.S. has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart et al. 2004). Such changes in the timing and amount of snowmelt are thought to be signals of climate-related change in high elevations (Smith et al. 2000, Reiners et al. 2003). The impact of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high-elevation montane habitats (IPCC 2007, Cook et al. 2004, Breshears et al. 2005, Mueller et al. 2005). The increased stress put on these habitats is likely to result in long-term changes to vegetation, and to invertebrate and vertebrate populations within coniferous forests and canyon habitats that affect ecosystem function and processes.

Critical habitat

The FWS designated critical habitat for the Mexican spotted owl in 2004 on approximately 8.6 million acres (3.5 million hectares) of Federal lands in Arizona, Colorado, New Mexico, and Utah (USDI FWS 2004). Within the designated boundaries, critical habitat includes only those areas in protected (PAC) and restricted (now called "recovery") habitats (unoccupied owl foraging, dispersal, and future nest/roost habitat) as defined in the 1995 Recovery Plan (USDI FWS 1995). The PCEs for Mexican spotted owl critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USDI FWS 1995). Since owl habitat can include both canyon and forested areas, PCEs were identified in both areas. The PCEs identified for the owl within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the owl's habitat needs for nesting, roosting, foraging, and dispersing are:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 to 45 percent of which are large trees with dbh (4.5 feet above ground) of 12 inches or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground;
- Large, dead trees (snags) with a dbh of at least 12 inches.
- High volumes of fallen trees and other woody debris;
- A wide range of tree and plant species, including hardwoods; and,
- Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

The PCEs listed above usually are present with increasing forest age, but their occurrence may vary by location, past forest management practices or natural disturbance events, forest-type productivity, and plant succession. These PCEs may also be observed in younger stands, especially when the stands contain remnant large trees or patches of large trees. Certain forest management practices may also enhance tree growth and mature stand characteristics where the older, larger trees are allowed to persist.

Steep-walled rocky canyonlands occur typically within the Colorado Plateau EMU, but also occur in other EMUs. Canyon habitat is used by owls for nesting, roosting, and foraging, and includes landscapes dominated by vertical-walled rocky cliffs within complex watersheds, including many tributary side canyons. These areas typically include parallel-walled canyons up to 1.2 miles (2 kilometers) in width (from rim to rim), with canyon reaches often 1.2 miles (2 kilometers) or greater, and with cool north-facing aspects. The PCEs related to canyon habitat include one or more of the following:

- Presence of water (often providing cooler and often higher humidity than the surrounding areas);
- Clumps or stringers of mixed-conifer, pine-oak, pinyon-juniper, and/or riparian vegetation;
- Canyon walls containing crevices, ledges, or caves; and,
- High percent of ground litter and woody debris.

Overall, the status of the owl and its designated critical habitat has not changed significantly range-wide in the U.S. (which includes Utah, Colorado, Arizona, New Mexico, and extreme southwestern Texas), based upon the information we have, since issuance of the 2011 MTC-Light BO (USFWS 2011). What we mean by this is that the distribution of owls continues to cover the same area, and critical habitat is continuing to provide for the life history needs of the Mexican spotted owl throughout all of the EMUs located in the U.S. We do not have detailed information regarding the status of the Mexican spotted owl in Mexico, so we cannot make inferences regarding its overall status.

However, this is not to say that significant changes have not occurred within the owl's U.S. range. Wildland fire has resulted in the greatest loss of PACs and critical habitat relative to other actions (e.g., such as forest management, livestock grazing, recreation, etc.) throughout the U.S. range of the Mexican spotted owl. These wildland fire impacts have mainly impacted Mexican spotted owls within the UGM EMU (e.g., Rodeo-Chediski and Wallow Fires on the Apache-Sitgreaves NF and Whitewater-Baldy Complex on the Gila NF) and BRW EMU (e.g., Horseshoe 2 Fire on the Coronado NF); but other EMUs have been impacted as well (SRM EMU, the Santa Fe NF by the Las Conchas Fire, CP EMU by the Warm Fire). However, we do not know the extent of the effects of these wildland fires on actual owl numbers.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions within the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

Camp Navajo is located in the Colorado Plateau physiographic province. The Colorado Plateau consists of uplifted and tilted sedimentary layers and steep-sided valleys at elevations of 5,000 to

7,000 feet. Elevations at Camp Navajo range from 6,770 feet in Volunteer Canyon to 8,047 feet on Volunteer Mountain. Vegetation at Camp Navajo comprises three major plant communities derived from a mid-level vegetation classification, which includes pine, mixed grass, and Douglas fir-white fir. The pine vegetation community on Camp Navajo covers approximately 18,328 acres and is the most common vegetation type. The pine forest is dominated by ponderosa pine (*Pinus ponderosa*) and includes species such as Gambel oak (*Quercus gambelii*). The mixed conifer vegetation community on Camp Navajo covers approximately 690 acres. The dominant species in this vegetation community are Douglas fir (*Pseudostuga menzeisii*) and white fir (*Abies concolor*). Other species include Gambel oak, Rocky Mountain snowberry (*Symphoricarpos rotundifolius*), juniper (*Juniperus* spp.), and blue spruce (*Picea pungens*). Subtypes of this vegetation include mixed-conifer dominated associations and mixed conifer-oak co-dominant associations.

The action area includes the entire installation and approximately a 0.25 mile buffer around the installation as noise from the action may impact the Volunteer Canyon PAC within and immediately adjacent to the installation.

A. Status of the species and critical habitat within the action area

Based upon information in the original BA, the amended BA, and a conversation with AZARNG staff on June 16, 2014, there are now three Mexican spotted owl PACs on Camp Navajo: Volunteer Canyon, Volunteer Mountain, and Tappen Springs a new pair with young found on the eastside of the installation near Tappen Spring. Designated critical habitat for the Mexican spotted owl is located along the southern portion of the installation, including most of Volunteer Canyon, and extends westward into the Coconino National Forest. Additional pine-oak restricted/recovery habitat for the species occurs in the vicinity of Volunteer Mountain on the western portion of the installation and within the East Buffer Training Area one the eastside of the installation.

Volunteer Canyon PAC

The Volunteer Canyon PAC is located on the southern end of Camp Navajo, extending into the Coconino National Forest (the Coconino National Forest and AZARNG share management of the PAC). Mexican spotted owl surveys of Camp Navajo have been conducted since 1997, primarily within the southern and western portions of the installation, which include this PAC. Adult Mexican spotted owls and potential juveniles were heard within the PAC on Camp Navajo during the summer of 2000. The owls were located primarily along the rim and side drainages of Volunteer Canyon near the installation's southern boundary with the Coconino National Forest. Mexican spotted owl surveys conducted in the summers of 2002, 2003, and spring 2004 did not locate owls in the OB/OD Area (Camp Navajo portion of the Volunteer Canyon PAC) or in suitable habitat within the installation. However, during the 2002 survey period, a large unidentified raptor was observed during night calling, and surveys in 2003 were not conducted to protocol due to logistical constraints. In 2010, spotted owl surveys for Camp Navajo were conducted between May and August by the Arizona Game and Fish Department (AGFD). A pair of Mexican spotted owls was located in a secondary drainage of Volunteer Canyon, within the Volunteer Canyon PAC, on Camp Navajo. Since that time (2012, 2013, 2014) the PAC has been monitored annually by the AZARNG and owls continue to occupy the area and produce young.

Volunteer Mountain PAC

The Volunteer Mountain PAC is located on the western edge of Camp Navajo on Volunteer Mountain. A telemetry study in the fall of 1995 found that a dispersing juvenile Mexican spotted owl spent approximately two weeks in the immediate vicinity of Volunteer Mountain (within the project area) before dispersing onto the Kaibab National Forest (Joe Ganey, Forest Service Experimental Station, Flagstaff, AZ, pers. comm., 1995). Since that time, additional detections of owls near Volunteer Mountain seem to indicate that spotted owls use this area and in 2011, a pair of spotted owls was located on the mountain and a PAC was drawn. Owls have been located fairly regularly in this PAC since 2011.

Tappen Springs PAC

The Tappen Springs PAC is located in the Southeastern corner of Camp Navajo in Pine-Oak habitat. In 2012, a male spotted owl was located within the eastern training area during nighttime surveys. No owls were detected during the daytime follow-up visit. Later that season, a pair of spotted owls was detected within the same general area, but additional visits did not locate owls. The area was re-surveyed in 2013 and 2014. On June 12, 2014, AZARNG staff reported that they had located a pair with two juveniles in this area and a PAC was established and a preliminary boundary determined. However, we have agreed that we will work with the AZARNG to modify the PAC boundary as additional survey information is collected.

B. Factors affecting the species and critical habitat within the action area

The majority of area within the Camp Navajo installation boundary is managed by the military for national defense purposes including military training, storage, and maintenance. The cantonment area occupies approximately 1,350 acres (5 percent of the installation) and includes administrative, public works, warehouse, and utility service structures; the igloo storage, ammunition maintenance, and standard magazine areas occupy approximately 11,378 acres (40 percent); and, primary training/maneuver areas cover approximately 14,950 acres (53 percent). The Open Burn/Open Detonation Area that is closed to all activities covers approximately 694 acres (2 percent of the installation). Approximately 17,000 acres (60 percent of the installation) is covered in forest. Ongoing impacts from human activity in PAC or restricted/recovery habitat that is likely disturbing Mexican spotted owls includes construction and use of small arms training ranges in the northern portion of the installation (see Consultation #22410-2004-F-0008), and ongoing fuels reduction treatments throughout the installation. To date, all projects associated with fuels reduction have resulted in insignificant and discountable effects to Mexican spotted owls (see Consultation #22410-2005-I-0187). However, the BO on the Camp Navajo Army Depot Firing Range Expansion Project (#22410-2004-F-0008) did result in our issuing an incidental take statement for dispersing owls at Camp Navajo. We anticipated that two owls would be taken as a result of that proposed action: one owl would be taken due to harassment due to noise and/or habitat disturbance, and, although unlikely, we identified a constant threat that one owl would be injured and/or killed as a result of impact from either rounds from weapons fired or shrapnel from ordnance explosion within the range. At this time, we have received no reports of any take that has occurred as a result of this action.

The largest portion of land surrounding Camp Navajo is undeveloped and administered by the U.S. Forest Service (Coconino and Kaibab National Forests), with a smaller portion of State Trust lands administered by the Arizona State Land Department. A small percentage of the surrounding land is privately held. The Burlington Northern Santa Fe Railway's railroad forms Camp Navajo's northern border, and Interstate 40 is located north of the railroad.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those caused by the proposed action and are later in time, but are still reasonably certain to occur.

Effects of the action on the Mexican spotted owl and its habitat

Effects on the Mexican spotted owl from the proposed action would include some habitat loss, habitat degradation, possible noise disturbance, and a very low likelihood of direct injury or fatality. Because portions of Camp Navajo are known to be utilized by resident and dispersing Mexican spotted owls, the analysis that follows assumes that owls may be present at any time within the pine-oak and mixed-conifer forested habitat types that comprise PAC habitat, restricted/recovery habitat, and designated critical habitat on the installation.

Habitat Effects

The proposed development of training ranges would require removal of trees (including some clear-cutting), construction of fire breaks, and construction of buildings, roads, and utilities that would lead to loss or degradation of Mexican spotted owl PAC, restricted/recovery, and designated critical habitat within Camp Navajo (Table 2). Development of ranges that overlap with designated critical habitat and restricted/recovery habitat would have impacts that include reduction of trees, amount of downed wood, number of snags, and canopy cover on the proposed ranges that could affect the suitability forest composition as habitat for the Mexican spotted owl and for its prey species.

Table 2. Impacted Habitat of Mexican Spotted Owls from Proposed Ranges at Camp Navajo

	Ranges/Training Sites			Surface Danger Zone (SDZ)		
Type of spotted owl Habitat	**Ranges/Training Sites Affected Habitat**	**Total Acres Affected**	**Acres of Affected Habitat**	**SDZ Affected Habitat**	**Total Acres Affected**	**Acres of Affected Habitat**
Critical Habitat	Anti-armor Tracking/Light Armor and Urban Assault Course and Improved Roads*	46 Pine-oak	45.7 Pine-Oak	Multi-purpose Machine Gun*, (Encompasses Infantry Platoon and Squad Battle Courses)	162	100 Mixed Grass 60 Mixed Conifer 2 Pine-Oak, Developed
PAC Habitat	Urban Assault Course, M113, Bivouac Sites, Improved Roads*	60	60	Multi-purpose Machine Gun	51	51 Mixed Conifer < 0.1 Pine-Oak
Restricted/ Recovery habitat	Anti-armor Tracking/Light Armor, Urban Assault Course; Improved Roads*, Drop zones, Landing Zones, Bivouac Sites	782	782.1Pine-Oak	Multi-purpose Machine Gun**	362	362 Pine-Oak

NOTES: * Indicates overlapping ranges

New ranges or modifications to existing ranges would impact about 888 acres of land within Camp Navajo. Approximately 60 acres within the Tappen Springs PAC, 46 acres of critical habitat, 782 acres of restricted/recovery habitat would be impacted by range and road improvements. Of this restricted/recovery habitat, 690 acres falls within the footprint of the Anti-Armor Tracking Range/Light Anti-Armor Range of which 10 acres will be clear cut (all trees removed). Twelve acres of Urban Assault Course of which 10 acres would be clear cut are located within the Tappen Springs PAC. The construction activities associated with the proposed ranges would include grading of land to meet safety standards, creation of target coffins in the appropriate ranges, thinning of trees and other vegetation, removal of vegetation for fire breaks, and some clear cutting. No mixed-conifer vegetation occurs within the developed ranges (only within SDZs); therefore, none of this habitat would be graded or cut as part of the proposed action.

Actions interrelated to the development of the ranges would involve construction of buildings for support functions at the ranges, installation or upgrading of utilities, construction of latrine facilities, and construction of new roads. The Urban Assault Course is located within the Tappen Springs PAC. The Urban Assault Course would involve the construction of 12 buildings approximately 640 square-feet each and a single 200 square-foot latrine. The Anti-Armor Tracking Range/Light Anti-Armor Range would have facilities that would be constructed in restricted/recovery habitat for the owl. The Anti-Armor Tracking Range/Light Anti-Armor Range would involve construction of a single 1,000 square-foot support building and a single 200 square-foot latrine. Also, approximately 3.7 miles of road are proposed for construction that

would lead to these ranges. The construction of buildings would remove additional habitat for the owl, roads could increase the opening of the forest canopy, and the installation of utilities would also require vegetation removal. Utilities would be buried and the trenches would be backfilled and re-vegetated; however, full recovery of the habitat from installation of utilities could take several decades. All other roads or support buildings for the other proposed ranges would likely occur in pure ponderosa pine forest or mixed-grass associations (which are not considered to be Mexican spotted owl nesting or roosting habitat).

Interdependent actions related to development of the ranges include the establishment of SDZs and construction, maintenance, and operation activities. As stated previously, SDZs are designated areas of ground and airspace around a firing range or training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems. Some ground disturbance would occur within SDZs, which would be caused by itinerant projectiles, fragments, or debris that can occasionally drift into these areas. No further development or alteration of vegetation is typically necessary in these areas, unless stray ordnance would cause an ignition and require fire suppression. Use of live ordnance on the Mortar Range may increase the likelihood of unplanned human-ignited fire affecting owl habitat. Normal maintenance of the vegetation to reduce the likelihood of wildland fire would continue in these areas. The proposed ranges would include SDZs that cover approximately 6,155 acres at Camp Navajo. Outside of critical and restricted/recovery habitat, these would cover several vegetation types, including: 3,881 acres of ponderosa pine (464 acres of which is developed); 545 acres of mixed grass (342 acres of which is developed); and, 243 acres of shrub-grass habitat that is already disturbed by development. Three hundred and sixty-two (362) acres of restricted/recovery habitat would be within and SDZ (362 acres of pine-oak) and 51 acres within the Volunteer Canyon PAC and almost a third (or ~200 acres) of the Volunteer Mountain PAC. However, based upon the topography surrounding both of these PACs, particularly the Volunteer Mountain PAC, the terrain mitigated SDZ will be much smaller and should exclude most PAC acres.

Maintenance of ranges would include building maintenance and vegetation management within the ranges. Vegetation management would include maintaining fire breaks around ranges, removing overgrowth of vegetation next to buildings, and suppressing the growth of noxious weeds. The AZARNG uses a combination of prescribed burns and forest thinning practices to reduce the chances of stand-replacing fires at Camp Navajo. Studies are ongoing on how and where to best implement prescribed burns and thinning operations. Approximately 107 acres of the Tappen Springs PAC will receive forest treatments, which will occur mostly on the southern boundary of the PAC. These treatments are expected to maintain key habitat components for Mexican spotted owls and reduce fire risk. The fire department on post, which is trained to fight both wildland and structural fires, coordinates prescribed burns and oversees the burning of piled slash from brush and tree thinning activities. Mechanical thinning may be used as an alternative to prescribed burning to manage vegetation in or near owl habitat. Camp Navajo will consult separately on the future thinning and burning projects, as they have done in the past.

Disturbance Effects

There are a growing number of studies attempting to describe and quantify the impacts of non-lethal disturbance on the behavior and reproduction of wildlife, and the Mexican spotted owl in

particular. Delaney *et al.* (1997) reviewed literature on the response of owls and other birds to noise and concluded the following: 1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season; 2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 feet and when sound levels are in excess of 95 dBA; and 3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation. Delaney *et al.* (1999) found that ground-based disturbances elicited a greater flush response than aerial disturbances. Our guidance is to limit potentially disturbing activities to areas ≥0.25 mile from PACs during the breeding season (March 1 through August 31). This corresponds well with the Delaney *et al.* 's (1999) 0.25 mile threshold for alert responses to helicopter flights. In addition, Delaney *et al.* (1999) found that spotted owls did not flee from helicopters when caring for young at the nest, but fled readily during the post-fledgling period. This may be a result of optimal fleeing decisions that balance the cost-benefit of fleeing. Frid and Dill (2002) hypothesize that this may be explained using predator risk-disturbance theory, and perhaps the cost of an adult Mexican spotted owl fleeing during the nestling period may be higher than during the post-fledgling period.

Mexican spotted owls are likely to be affected by noise and visual disturbance associated with the Camp Navajo MTC-Light construction and training activities. Sound disturbance from training exercises could result in disturbance to dispersing and/or foraging owls. Also, sound levels in the area in common with ranges, SDZs, and designated critical habitat during training exercises could exceed levels that are known to disturb Mexican spotted owls (Delaney et al. 1999). However, the conservation measures indicate that noise levels would be measured at the Volunteer Canyon PAC boundary for activities on the Infantry Squad Battle Course, Infantry Platoon Battle Course, Convoy Live Fire Range, and Multi-Purpose Machine Gun Range and would be reduced to less than 90 dBA. In addition, current tree densities between the Volunteer Canyon PAC boundary and the Infantry Squad Battle Course and Infantry Platoon Battle Course would be maintained if necessary to assist with reducing noise levels below 90 dBA at the PAC boundary.

Noise and visual disturbance associated with vehicular traffic and construction may disturb breeding and foraging behaviors of Mexican spotted owls associated with the Volunteer Canyon, Volunteer Mountain, and Tappen Springs PAC. Such disturbance may cause adults to flush from roosts, but will likely not be close enough to the PAC boundary to result in adults leaving a nest. In addition, Mexican spotted owls may avoid areas of construction, which could disrupt foraging habits and cause an increase in energy expenditure for a lower return on foraging success. This could, in turn, result in a decline in physical condition and could ultimately affect both the survival of adults and their young. Human disturbance can also act as a form of increased predation risk (Frid and Dill 2002).

Operation of ranges includes various levels of use that vary with the purpose of each individual range. The soldier use days range from a low of 160 to a high of 6,300 for training activities. Ranges that would operate in or near owl recovery and critical habitat would use small arms that typically use 5.56 mm ammunition. This includes the Infantry Platoon Battle Course and Infantry Squad Battle Course, each of which would receive about 1,120 soldier use days. The Urban Assault Course, located within the Tappen Springs PAC on the eastside of the installation, uses 5.56 mm and 7.62 mm blank rounds only. The Anti-Armor Tracking Range uses a laser

system for training, and the same range when used as the Light Anti-Armor Range uses a sub-caliber 9 mm training round. The noise from firearms utilized on these two ranges typically is about 160 dB at the shooter, which would attenuate from the firing point. However, these battle courses would not have a single firing point and the sound impact would vary from the firing location to any Mexican spotted owl location or habitat. The noise would exceed adverse levels when firing points are next to or near a nest, perch, roost, or foraging habitat but would attenuate with distance and obstructive vegetation. However, on any given day, owl roost locations will not be known, so disturbance is likely to occur to owls, particularly owls associated with the Tappen Springs PAC.

Other ranges are likely far enough from suitable habitat to have little or no noise-related effect on the owl. A portion of the M113 vehicle course goes through the Tappen Springs PAC and restricted/recovery habitat in the southeastern part of the installation. This patch of habitat could be affected by both sound from weapons fire and vehicles, movement of vehicles through the area, or human activity associated with the ranges. Existing nearby disturbances in the Cinder Pit II, the small size of this habitat patch (approximately 300 acres), and its relative isolation likely currently preclude Mexican spotted owls from using this area for nesting and roosting.

Construction actions could include grading, tree removal, and construction of a fire break that also would involve noise disturbance and human disturbance. Maintenance activities would include upkeep of the firebreak. This area could also receive use during training exercises and could be subject to noise disturbance from firearms and disturbance from the presence of humans. Construction of ranges would require heavy earth-moving equipment, trucks, and tools for removal of trees. Impacts to spotted owls could come from increased human activity and noise from construction equipment that could provoke spotted owls to increase their alert response or flush from the sources of disturbance. SDZs also may experience elevated noise levels during construction of the surrounding ranges, but will likely later serve as a disturbance buffer zone for noise and activity disturbances.

Construction activities would occur adjacent to designated critical habitat and within a 0.25 mile the Volunteer Canyon PAC, but no actual construction would occur in these areas. Disturbances to this habitat in the future could include general vegetation maintenance that could be tailored to the needs of spotted owls to maintain forest structure and habitat for prey species, while also reducing the likelihood of stand-replacing fires (future work that would need additional consultation). Furthermore, the SDZs could receive stray ordnance and noise from the Infantry Squad Battle Course and Infantry Platoon Battle Course/Light Anti-Armor Range. Stray ordnance could come from 9 mm rounds used at the Light Anti-Armor range or 5.56 mm rounds used on the other two ranges. Noise emanating from the ranges should be attenuated greatly in the SDZ and within the Volunteer Canyon and Volunteer Mountain PACs.

In summary, the proposed action will result in noise disturbance to spotted owls associated with the Volunteer Canyon, Volunteer Mountain, and Tappen Springs PACs. Initially, this disturbance may be the result of construction activities around the site, but all of the Volunteer Canyon PAC acres within Camp Navajo lie within an SDZ for the Multi-Purpose Machine Gun Range (which encompasses the Infantry Platoon and Squad Battle Courses). Such activities will likely result in some level of disturbance to Mexican spotted owl use of the Volunteer Canyon PAC and critical habitat in the southern portion of the installation. In addition, a thirty-two acre

bivouac site as well as the Urban Assault Course and portions of the M113 course lie within the Tappen Spring PAC boundary.

Injury and/or Death

A very small potential exists for direct injury or death of owls from stray ordnance and vehicular traffic. Implementation of the proposed action may result in injury or death to Mexican spotted owls during use of the firing range for training exercises. Although a conservation measure has been incorporated into the proposed action to visually scan a range prior to use, rounds from weapons fired within ranges may travel beyond established targets into portions of SDZs containing restricted/recovery habitat. Mexican spotted owls are most active at night and the proposed action will include night firing, which may increase the chance of a foraging or dispersing spotted owl being shot. However, the likelihood that a round would strike a spotted owl is extremely low. Vehicular traffic within the area will increase during range construction and operation; however, Camp Navajo has a 25 mph speed limit that should minimize the potential for vehicle-owl collisions.

Mexican spotted owls could be impacted to a small degree by lead poisoning from ordnance if it enters their prey populations. Small birds and small mammals can directly or incidentally consume lead shot, dust, and fragments (Kendall et al. 1996) and the spotted owl can eat prey with elevated lead levels in their blood. Animals killed with lead-based ammunition can retain dust and other small fragments that can in turn contaminate the consumer of those animals. However, the likelihood of these lead contamination scenarios occurring is extremely small. Users of the ranges are under strict orders to not shoot at wildlife, which would reduce the possibility of lead contamination in owl prey populations. Additionally, 5.56 mm ammunition exclusively used on the Infantry Platoon Battle Course and Infantry Squad Battle Course and most commonly on other ranges does not contain lead, which eliminates these areas as a source of contamination in and near owl habitat. Other ranges that are more distant from spotted owl habitat do use ammunition or ordinance that could contain lead, which does allows for a small risk of lead poisoning of the Mexican spotted owl.

Effects of the action on Mexican spotted owl critical habitat

In our analysis of the effects of the action on critical habitat, we consider whether or not a proposed action will result in the destruction or adverse modification of critical habitat. In doing so, we must determine if the proposed action will result in effects that appreciably diminish the value of critical habitat for the recovery of a listed species. To determine this, we analyze whether the proposed action will adversely modify any of the PCEs that were the basis for determining the habitat to be critical. To determine if an action results in adverse modification of critical habitat, we must also evaluate the current condition of all designated CHUs, and the PCEs of those units, to determine the overall ability of all designated critical habitat to support recovery. Further, the functional role of each of the CHUs in recovery must also be considered because, collectively, they represent the best available scientific information as to the recovery needs of the species.

Below, we describe the PCEs related to forest structure and maintenance of adequate prey species and the effects from implementation of 4FRI. The PCEs for steep-walled rocky

canyonlands are not analyzed in this BO because this habitat does not occur within the action area.

Two proposed range footprints would overlap with designated critical habitat for the Mexican spotted owl at Camp Navajo. The Multi-purpose Machine Gun Course (which encompasses the Infantry Platoon and Squad Battle Courses) would include about 46 acres of critical habitat. SDZs that overlap with critical habitat involve a total of 162 acres. The total impacted critical habitat includes approximately 208 acres of the pine-oak forest.

Primary Constituent Elements related to forest structure:

PCE: A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with dbh of 12 inches or more.

Effect: Forest management actions implemented under the proposed project are expected to retain the range of tree species (i.e., conifers and hardwoods associated with Mexican spotted owl habitat) and would not reduce the range of tree sizes needed to create the diverse forest and multi-layered forest canopy preferred by owls. Some loss of trees of all types and dbh size classes would occur during mechanical thinning and prescribed fire activities. However, most forest management actions implemented under the MTC Lite are expected to maintain a range of tree species and sizes needed to maintain this PCE in PACs and restricted/recovery habitat across the treatment area because the AZARNG is implementing the Recovery Plan guidelines that strive to retain large trees, canopy cover appropriate for owl habitat, and a diverse range of tree species (such as Gambel oak in pine-oak forests). Within the footprint of the Anti-Armor Tracking Range/Light Anti-Armor Range (10 acres) within restricted/recovery habitat and the Urban Assault Course within the Tappen Springs PAC (10 acres) will be clear cut (all trees removed). However, because most actions within forested owl habitat will strive to maintain a range of tree species, the function and conservation role of this PCE would not be compromised by the proposed action.

PCE: A shade canopy created by the tree branches covering 40 percent or more of the ground.

Effect: We expect that tree shade canopy would be reduced following thinning and burning treatments and removal of trees for construction and maintenance of ranges. However, we do not expect canopy cover in Mexican spotted owl forested habitat to be reduced below 40 percent in the majority of the project area as the AZARNG has adopted the Recovery Plan recommendations that include managing for higher basal area and increased canopy cover in Mexican spotted owl habitat versus pure ponderosa pine or other forest and woodland habitats. Adverse effects to this PCE will occur in the small 10-acre clear-cut which will no longer provide this shade canopy. In general, we would expect that some reduction in existing canopy cover (5 to 10 percent) may actually aid in increasing understory herbaceous vegetation and forb production, which could benefit Mexican spotted owl prey species, but we acknowledge the adverse effects and loss of shade canopy within the proposed clear-cut. The function and conservation role of this PCE would not be compromised by the proposed action.

PCE: Large, dead trees (snags) with a dbh of at least 12 inches.

Effect: Removal of trees for construction and maintenance of ranges could reduce the number of snags ≥12 inches diameter-at-breast height (dbh). Large snags could be both created and lost following proposed prescribed burning (Horton and Mannan 1988, Randall-Parker and Miller 2002) and/or military training exercises. Snags would be created as large and small trees are killed through prescribed burning. This may benefit Mexican spotted owls, particularly their prey species as most snags created through the prescribed fire are likely to be ≤9 inches dbh (Saab et al. 2006). Snags used by Mexican spotted owls for nesting are typically very old, large dbh, highly decayed snags with cavities. Snags with these characteristics tend to be limited in ponderosa pine and mixed conifer forests in northern Arizona (Ganey and Vojta 2004). In individual burning projects, the Forest Service would attempt to minimize loss of these large snags through conservation measures (such as lining or using lighting techniques to avoid snags). Conservation measures/design features will be implemented to protect the largest and oldest snags. Therefore, although we anticipate there would be a measurable loss of snags due to implementation of the MTC Lite project, efforts to protect this rare resource would be made to minimize this loss, and the function and conservation role of this PCE would not be compromised by the proposed action.

Primary Constituent Elements related to maintenance of adequate prey species:

PCE: High volumes of fallen trees and other woody debris.

Effect: Fallen trees and woody debris would likely be reduced by the proposed burning treatments (broadcast, piling, and maintenance burning) and fire starts from military activities. Research and monitoring indicates that prescribed burning could reduce logs by as much as 30 to 50 percent (Randall-Parker and Miller 2002, Saab et al. 2006). The loss of larger logs could result in short-term adverse effects to this primary constituent element and could result in localized impacts to prey species habitat. However, across the project area, it is likely that prescribed burning and other fire would also create fallen trees and woody debris as trees are killed post-burn and fall. In fact, based upon current data for many of these areas, there is an excess supply of coarse woody debris due to the exclusion of frequent, low-severity fire, which can increase the likelihood of high-severity fire within recovery habitat. Therefore, some removal of woody debris would result in an overall benefit to the function and conservation role of this PCE, though short-term adverse effects would likely occur within some acres.

PCE: A wide range of tree and plant species, including hardwoods.

Effect: We expect this PCE would be positively affected by the forest management actions taken under the MTC Lite Project. Plant species richness would increase following thinning and/or burning treatments that result in small, localized canopy gaps. Forest management activities will focus on retaining Gambel oaks and other hardwood and coniferous species but some level of short-term loss could occur during thinning operations, prescribed fires, range construction, or other activities. However, the function and conservation role of this PCE would not be compromised by the proposed action.

PCE: Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

Effect: Short-term decreases in plant cover would result from prescribed burning and other ground-disturbing activities associated with range construction and military maneuvers. We expect long-term increases in residual plant cover because fire treatments would provide conditions suitable for increased herbaceous plant growth by removing a thick layer of dead plant debris within treated areas. The mosaic effect created by burned and unburned areas and by opening up small patches of forest within protected habitat is also expected to increase herbaceous plant species diversity (Jameson 1967, Moore et al. 1999, Springer et al. 2001) and, in turn, assist in the production and maintenance of the Mexican spotted owl prey base. The combination of low-intensity prescribed burns and thinning would most likely result in only short-term effects to the Mexican spotted owls with regard to modifying prey habitat within treatment areas. In frequent-fire landscapes, herbaceous understory response and plant regeneration tends to be positive following tree removal and prescribed fire (Springer et al. 2001). Therefore, the function and conservation role of this PCE within the MTC-Lite area would not be compromised by the proposed action.

Effects of the action on the role of critical habitat in recovery

Adverse effects and associated incidental take from the MTC Lite Project are not expected to negatively affect Mexican spotted owl recovery or further diminish the conservation contribution of critical habitat to the recovery of the Mexican spotted owl. The MTC Lite Project includes objectives and species protection measures in accordance with the Recovery Plan (USFWS 2012). These actions were identified by the Recovery Team as being necessary to recover the Mexican spotted owl, and the MTC Lite Project will implement these actions in designated critical habitat where it is compatible with the military mission. Designated critical habitat includes all protected (PACs) and restricted/recovery habitat (unoccupied spotted owl habitat) within CHUs. These actions include the following:

- The AZARNG within the project area has and continues to designate 600 acres surrounding known Mexican spotted owl nesting and roosting sites. PACs are established around owl sites and are intended to protect and maintain occupied nest/roost habitat. Nesting and roosting habitat is rare across the range of the Mexican spotted owl, and by identifying these areas, which are also critical habitat, for increased protection, the AZARNG is aiding in recovery.

- The MTC Lite Project has identified and is managing for areas of pine-oak forest that have potential for becoming Mexican spotted owl replacement nest-roost habitat, or are currently providing habitat for foraging, dispersal, or wintering habitats. As stated above, nesting and roosting habitat is a limiting factor for the owl throughout its range. By managing critical habitat for future replacement nest/roost habitat, the AZARNG is aiding in recovery.

- The AZARNG's intent is to integrate the best available recovery habitat management objectives where possible into the military mission at Camp Navajo with a goal to protect owl PACs from high-severity wildland fire and to conduct actions to improve forest sustainability (e.g., thinning and prescribed burning). This management will ensure that

Mexican spotted owl habitat continues to exist at Camp Navajo and that critical habitat will continue to retain its function for conservation and recovery.

Over the long-term, these actions should increase the sustainability and resiliency of Mexican spotted owl habitat (particularly through fuels management and forest restoration actions) on Camp Navajo. Therefore, implementation of the MTC Lite Project is not expected to further diminish the conservation contribution of critical habitat to the recovery of the Mexican spotted owl.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Since the land within the project vicinity is almost exclusively managed by the AZARNG, most activities that could potentially affect listed species are Federal activities and subject to additional section 7 consultations. Future non-Federal actions within the project area that may be reasonably certain to occur include potential development of Arizona State Land Department lands and private land (56.8 acres) located adjacent to the southern boundary of Camp Navajo. These lands adjacent to Camp Navajo contain suitable habitat for the Mexican spotted owl. Development of these lands adjacent to Camp Navajo could reduce the suitability of currently occupied habitat and restricted/recovery habitat for the spotted owl at Camp Navajo. Increased human use of surrounding potential owl habitat could lead to habitat degradation (e.g., loss of key habitat components, loss of habitat), impacting the integrity of the habitat within Camp Navajo. In response to greater levels of human activity and increased noise levels, spotted owls may have reduced fitness and/or survival. Increased human development in these areas could also increase the likelihood of unplanned human-ignited fire affecting owl habitat within and adjacent to the facility. Development of these parcels of land may also result in higher volumes of vehicular traffic, which could increase the likelihood of collisions with spotted owls.

CONCLUSION

After reviewing the current status of the Mexican spotted owl and its critical habitat, the environmental baseline for the action area, the effects of the proposed project, and the potential for cumulative effects, it is our biological opinion that implementation of the Camp Navajo MTC- Light Project, as proposed, is not likely to jeopardize the continued existence of the Mexican spotted owl or destroy or adversely modify its designated critical habitat.

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete our analysis with respect to critical habitat.

We present this conclusion for the Mexican spotted owl and its critical habitat for the following reasons:

1. The project footprint is relatively small spatially and though it will result in habitat modification to approximately 60 acres within the Tappen Springs PAC, 45.7 acres of critical habitat, and 782 acres of restricted/recovery habitat, it will not reduce the ability of owls to occupy these areas in terms of available physical habitat. Most habitat effects in the Volunteer Mountain and Volunteer Canyon PACs are relatively small and will maintain the integrity of nesting/roosting habitat. The modifications to critical habitat will not significantly reduce its ability to remain functional and continue to serve its intended conservation role for the Mexican spotted owl.

2. Project-related construction and training noise may result in disturbance to spotted owls at Camp Navajo. However, the effort to keep sound below 90dBA at the PAC boundaries and management of SDZs to buffer noise (e.g., maintaining more trees) near the PACs will reduce long-term noise impacts to Mexican spotted owls on Camp Navajo, particularly those in the Volunteer Mountain and Volunteer Canyon PACs.

3. The implementation of the proposed action is not expected to impede the survival or recovery of Mexican spotted owls within the Upper Gila Mountains EMU as a very small amount of spotted owl habitat will be removed and/or modified relative to the amount of habitat available in the EMU.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the AZARNG so that they become binding conditions of any grant or permit issued to an applicant/permittee, as appropriate, for the exemption in section 7(o)(2) to apply. The AZARNG has a continuing duty to regulate the activity covered by this incidental take statement. If the AZARNG (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are

added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the AZARNG must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement [see 50 CFR 402.14(i)(3)].

Mexican spotted owl

For the purpose of evaluating incidental take of Mexican spotted owls from the action under consultation, incidental take can be anticipated as either the direct fatality of individual birds or the alteration of habitat that affects behavior (e.g., breeding or foraging) of birds only temporarily, or to such a degree that the birds are considered lost as viable members of the population and thus "taken." Birds experiencing only temporary or short-term effects may fail to breed, fail to successfully rear young, or raise less fit young; longer-term disturbance may result in owls deserting the area because of chronic disturbance or because habitat no longer meets the owl's needs.

We anticipate that the proposed action is reasonably certain to result in incidental take of Mexican spotted owls. However, it is difficult to quantify the number of individual owls potentially taken because: (1) dead or impaired individuals are difficult to find and losses may be masked by seasonal fluctuations in environmental conditions; (2) the status of the species could change over time through immigration, emigration, and loss or creation of habitat; and (3) the species is secretive and we rarely have information regarding the number of owls occupying a PAC and/or their reproductive status. For these reasons, we will attribute incidental take at the PAC level. This fits well with our current section 7 consultation policy which provides for incidental take if an activity compromises the integrity of an occupied PAC to an extent that we are reasonably certain that incidental take occurred (USFWS 1996). Actions outside PACs will generally not result in incidental take because we are not reasonably certain that Mexican spotted owls are nesting and roosting in areas outside of PACs. We may modify this determination in cases when areas that may support spotted owls have not been adequately surveyed and we are reasonably certain spotted owls are present.

Amount or Extent of Take Anticipated

Using available information as summarized within this document, we have identified conditions of possible effects on the Mexican spotted owl associated with implementation of the Camp Navajo MTC-Light Project to both resident and dispersing spotted owls within the installation. However, as described above under "Factors affecting the species and critical habitat in the action area", we considered the incidental take from training activities that we have already anticipated at the Volunteer PAC in Camp Navajo (see Camp Navajo Army Depot Firing Range Expansion Project, Consultation #22410-2005-F-0008). The effects from the operation of additional ranges considered in this biological opinion are difficult to separate from the effects of the entire training mission at Camp Navajo, which was considered in the Firing Range Expansion consultation. Since our issuance of that BO, two additional PACs, Volunteer Mountain and Tappen Springs, have been established within the project area.

Based on the best available information concerning the Mexican spotted owl, habitat needs of the species, the project description, and information furnished by the Camp Navajo, we do not think

that the construction activities and increased training use on the installation in this proposed action are reasonably certain to result in incidental take beyond that which we have already anticipated for owls associated with the Volunteer Canyon and Volunteer Mountain PACs. We think that Camp Navajo has proposed conservation measures that will minimize adverse effects to Mexican spotted owls associated with these two PACs and that the incidental take is not likely to increase beyond what has already been anticipated for the resident owls associated with those PACs and owls that may disperse through the installation. However, we think that the Urban Assault Course located within the Tappen Springs PAC (which would involve the construction of 12 buildings approximately 640 square-feet each and a single 200 square-foot latrine) and the other training and habitat modifications planned within the Tappen Springs PAC are likely to result in additional incidental take.

Therefore, using available information as summarized within this document, we have identified conditions of incidental take for the Mexican spotted owl associated with implementation of the MTC Lite Project. Based upon the potential for incidental take to occur as part of implementation of the project, we anticipate the following incidental take for the proposed action, which is in addition to previously authorized incidental take resulting from the Firing Range Expansion consultation (see above):

- We anticipate the incidental take of Mexican spotted owls and/or associated eggs/juveniles associated with the Tappen Springs PAC due to long term (over more than three breeding seasons) disturbance and habitat altering actions that disrupt or are likely to disrupt owl behavior within the PAC indefinitely.

EFFECT OF THE TAKE

In this BO, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the Mexican spotted owl. We have based this determination on the efforts to reduce noise and habitat disturbance in the Volunteer Canyon and Volunteer Mountain PACs.

The FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the effects of take of Mexican spotted owls.

1. Minimize adverse effects to Mexican spotted owls affected by the MTC Lite Project.
2. Minimize adverse effects to Mexican spotted owl habitat affected by the MTC Lite Project.
3. Monitor the impacts of the proposed actions to the Mexican spotted owls affected by the MTC Lite Project.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the AZARGN must comply with the following terms and conditions, which implement the reasonable and prudent measures listed above and outline reporting/monitoring requirements. These terms and conditions are non-discretionary. The FWS may approve deviation from these terms and conditions through site-specific project consultation. Examples warranting deviation from these terms and conditions may include, but are not limited to instances where site-specific conditions dictate that full

compliance with the condition is not necessary to avoid incidental take; the AZARNG lacks discretionary authority to implement the condition; or, deviation from the condition is needed to meet the purpose and need of a project.

Mexican spotted owl

The following terms and conditions will implement reasonable and prudent measure 1:

1.1 The AZARNG shall avoid activities within 0.25 mile of the Volunteer Canyon and Volunteer Mountain PACs during the breeding season (March 1 to August 31) that could result in disturbance to nesting owls. If the AZARNG determines through protocol surveys that spotted owls are not nesting the year of the proposed project or locates a nest and is able to buffer the breeding owls from noise throughout the breeding season, then this restriction would not apply. Other options include documenting topographic buffers in specific PACs or using noise tampering technology to reduce noise impacts. It is not possible for the AZARNG to commit to this measure for the Tappen Springs PAC due to the two ranges and bivouac site in the PAC; however, where possible and where it will not compromise the military mission, efforts will be made to reduce noise levels within this PAC as well.

1.2 AZARNG project activities within PACs habitat shall be coordinated and implemented to reduce potential disturbance to Mexican spotted owls. This may include, for example, where possible in order to minimize the frequency and duration of operations within and immediately adjacent to PACs.

1.3 The AZARNG, in coordination with the FWS, shall develop contingency plans in the event of new PACs being established or PAC boundary modifications due to owl movement or habitat changes. Flexibility shall be built into MTC Lite project activities so that as owls move or new sites are located, activities can be modified to accommodate these situations.

1.4 The AZARNG shall ensure that all contractors associated with thinning and burning activities, transportation of equipment and forest products, research, or military training activities are briefed on the Mexican spotted owl, know to report sightings and to whom, avoid harassment of owls, and are informed as to who to contact and what to do if a Mexican spotted owl is incidentally injured, killed, or found injured or dead on the installation. If an owl fatality is discovered, the FWS Mexican spotted owl lead will be contacted as soon as possible.

The following terms and conditions will implement reasonable and prudent measure 2:

2.1 The AZARNG shall coordinate management and military training activities within PACs in order to reduce effects to habitat from multiple entries that can disturb owls and result in adverse effects to habitat.

The following terms and conditions will implement reasonable and prudent measure 3:

3.1 The AZARNG shall monitor the impacts of incidental take resulting from implementation of the proposed action and report these findings to the FWS. Incidental take monitoring shall include information such as when the activities were implemented, whether the project was implemented as proposed and analyzed in this BO (including conservation measures and best management practices), breeding season(s) over which the project occurred, relevant owl survey information, and any other pertinent information about the project's effects on the species.

3.2 Annual reports will describe actions taken under this proposed action and impacts to the owl and its critical habitat. The annual report shall be sent to the Flagstaff FWS Ecological Services field office and the Mexican spotted owl species lead by March 1st of each year.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Forest Service must immediately provide an explanation of the causes of the taking and review with the Arizona Ecological Services Office the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113; 505-248-7889) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR

31132) published in the Federal Register on June 5, 2007 (http://www.fws.gov/southwest/es/arizona/BaldEagle.htm), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the AZARNG work with us, Coconino County, AGFD, the Naval Observatory Flagstaff Station, and other partners to protect State Trust Lands to ensure conservation of Mexican spotted owl habitat in areas adjacent to Camp Navajo.

2. We recommend that the AZARNG work with us to develop fuels reduction and prescribed burning treatments across the installation to protect Mexican spotted owl habitat from human and/or naturally-ignited wildland fire and increase habitat sustainability.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in this biological opinion. As provided in 50 CFR Section 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Thank you for your continued coordination and patience regarding this re-initiation of consultation. We also encourage you to coordinate the review of this project with the AGFD. In all future correspondence on this project, please refer to the consultation number 22410-2009-F-0126-R001. Should you require further assistance or if you have any questions, please contact Shaula Hedwall at (928) 556-2118 or Brenda Smith at (928) 556-2157.

Sincerely,

Brenda H. Smith

for Steven L. Spangle
Field Supervisor

cc (electronic):
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Field Supervisor, Arizona Game and Fish Department, Flagstaff, AZ
Natural Resource Manager-Wildlife Biologist, Camp Navajo, Bellemont, AZ

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APPENDIX A – TECHNICAL ASSISTANCE

This appendix contains recommendations to AZARNG to reduce the likelihood of take of bald eagles (*Haliaeetus leucocephalus*) from implementation of the MTC-Light Project. There are no known golden eagles (*Aquila chrysaetos*) within the project area.

The final rule to remove the bald eagle from the Federal List of Threatened and Endangered Species was published in the Federal Register on July 9, 2007, and took effect on August 8, 2007. However, bald and golden eagles continue to be protected by the Bald and Golden Eagle Protection Act (Eagle Act). The Eagle Act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking eagles, including their parts, nests, or eggs. "Take" is defined under the Eagle Act as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" eagles. Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based upon the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (USDI 2007).

AZARNG and FWS jointly developed the following conservation measures to minimize impacts to wintering bald eagles in the project area. There are no nesting bald eagles on the installation or within approximately 15 to 20 miles straight-line distance. These measures are consistent with the strategies identified in the Conservation Assessment and Strategy for the Bald Eagle in Arizona (Driscoll et al 2006). We agree that implementation of the following measures will reduce the likelihood of take.

Bald eagle

1. All activities that may disturb bald eagle roost and forage sites within Camp Navajo would be avoided when feasible. Specifically, potentially disturbing activities within the proposed ranges would be minimized when possible from October 15 to April 15.

2. During winter months, when bald eagles are present in the area, activities at the proposed ranges would take place between 1000 and 1600 hours, when possible, to minimize potential disturbance of roosting bald eagles.

3. Winter raptor surveys would continue on a yearly basis. These surveys would assist in determining the presence of bald eagles and locating potential roost sites.

4. Prior to any range use, a visual scan of the range would be made for the presence of large raptors, including bald eagles. Trained personnel would conduct these searches. If large raptors are observed during initial scan of the range area, the Camp Navajo Natural Resources Specialist would be notified and activities would be halted until the species are identified and activities are cleared to proceed. If no large raptors are observed prior to range use, activities would proceed as planned.

5. If a winter roost site is in the vicinity of the range complex (including SDZs), bald eagles at the site would be monitored during range use to determine the effects of noise and military activity. The AZARNG would continue to analyze winter raptor and breeding bird survey data to determine patterns of habitat use within the action area and implement beneficial management actions.

6. Targets on firing ranges would be configured to avoid large-diameter trees and snags.

7. Trees left within proposed firing ranges would be monitored to assess long-term damage from training rounds. A monitoring program for forested areas within proposed ranges and SDZs may also be established to assess forest reproduction and recruitment. Monitoring would be conducted under the Land Condition Trend Analysis component of the AZARNG Integrated Training Area Management Program.

8. Roadways, staging areas, and other areas disturbed during construction activities that would not be needed for the proposed ranges would be re-vegetated with native plant species.

9. Mechanical thinning and prescribed burning within the firebreak perimeters would be conducted to minimize the risk of wildfire spreading to bald eagle roosting habitat.

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